

4. Window Management

4.1 Window Decorations

A window consists of a frame for accessing window management functions and a client area for displaying information and interacting with users. In Motif, the frame includes a title bar, Control menu button, window buttons, and window border, as shown in the upper portion of figure 4-1. In MS Windows, the frame includes a title bar, window buttons, and window border, as shown in the lower portion of figure 4-1; the frame can also include a sizing grip and What's This? button (not shown in figure 4-1).

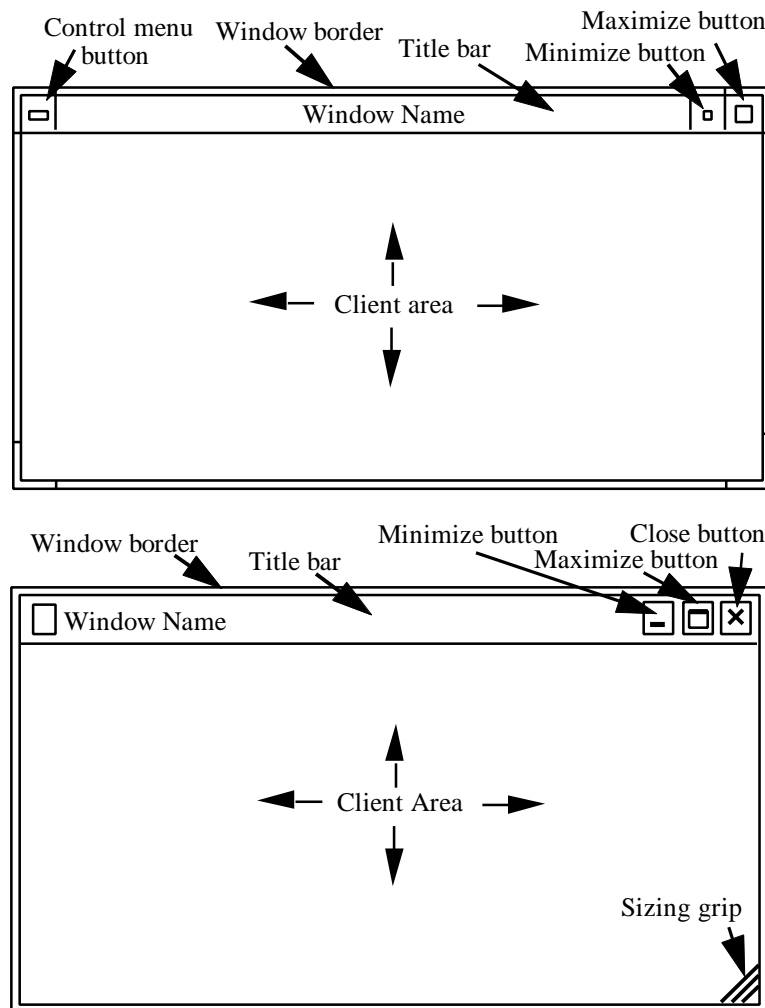


Figure 4-1. Standard window decorations in Motif and MS Windows.

Table 4-1 lists the window management functions and Control menu contents that are present, absent, or optional in or not applicable to primary, dialog, and message windows.¹ Section 4.2.1 defines each of these window types.

MS Windows Only: A document window in an MDI application (see section 7.1.2.3) has the same window decorations as a primary window, and its Control menu contains the same options as the Control menu in the parent application window.

Table 4-1 follows Motif and MS Windows conventions with regard to the availability of the window management functions. Motif recommends that secondary windows not be resized or maximized but allows these functions to be present if necessary. MS Windows recommends that secondary windows not be resized or maximized. In the specifications presented here, only dialog windows in Motif can be resized and maximized. MS Windows indicates that a What's This? button can be included in dialog windows. The specifications presented here call for dialog windows to include this button only if the application supports context-sensitive help (see section 11).

Table 4-1. Window decorations and Control menu contents in primary, dialog, and message windows.

	<u>Primary Window</u>		<u>Dialog Window</u>		<u>Message Window</u>	
	<u>Motif</u>	<u>MS Windows</u>	<u>Motif</u>	<u>MS Windows</u>	<u>Motif</u>	<u>MS Windows</u>
<u>Window Decoration</u>						
Title bar	Yes	Yes	Yes	Yes	Yes	Yes
Control menu button	Yes	N/A	Yes	N/A	Yes	N/A
Control menu	Yes	Yes	Yes	Yes	Yes	Yes
Maximize button	Yes	Yes	Optional	No	No	No
Restore button	N/A	Yes	N/A	No	N/A	No
Minimize button	Yes	Yes	No	No	No	No
Close button	N/A	Yes	N/A	Yes	N/A	Yes
What's This? button	N/A	No	N/A	Optional	N/A	No
Window border	Yes	Yes	Optional	No	No	No
Sizing grip	N/A	Optional	N/A	No	N/A	No
<u>Control Menu Contents</u>						
Restore	Yes	Yes	Optional	No	No	No
Move	Yes	Yes	Yes	Yes	Yes	Yes
Size	Yes	Yes	Optional	No	No	No
Minimize	Yes	Yes	No	No	No	No
Maximize	Yes	Yes	Optional	No	No	No
Lower	Yes	N/A	Yes	N/A	Yes	N/A
Occupy Workspace	Yes	N/A	Yes	N/A	Yes	N/A
Occupy All Workspaces	Yes	N/A	Yes	N/A	Yes	N/A
Unoccupy Workspace	Yes	N/A	Yes	N/A	Yes	N/A
Close	Yes	Yes	Yes	Yes	Yes	Yes

¹ The previous version of the DII style specifications referred to primary task, secondary task, and dialog windows. The terminology used here was changed to be more similar to that used in Motif and MS Windows documentation.

4.1.1 Title Bar

The title bar extends across the top of a window and displays the window title. Dragging the title bar with BLeft moves an outline of the window as the pointer moves; releasing BLeft places the window at its new location. Activating the Move option in the Control menu and then dragging the window with the pointer also moves the window.

MS Windows Only: Moving an MDI parent window (see section 7.1.2.3) moves all of the open document windows as a set, maintaining their relative positions within the parent.

4.1.2 Control Menu

The Control menu includes options for performing the window management functions supported in the window.²

Motif Only: The Control menu button is displayed at the left edge of the title bar. Clicking BLeft or BRight on the button displays the Control menu. If the following options are included in the menu, they are ordered: Restore, Move, Size, Minimize, Maximize, Lower, Occupy Workspace, Occupy All Workspaces, Unoccupy Workspace, and Close. Separators are included after the Lower option and before the Close option. Clicking BLeft or BRight outside the menu dismisses it. Double clicking BLeft on the Control menu button closes the window.

MS Windows Only: Clicking BRight on the title bar of a window displays the Control menu. If the window includes a title bar icon, clicking BLeft on it also displays the menu. If the following options are included in the menu, they are ordered: Restore, Move, Size, Minimize, Maximize, and Close. A separator is included before the Close option. Clicking BLeft outside the menu dismisses it. Double clicking BLeft on the title bar icon closes the window.³

The options in the Control menu execute the actions and include the mnemonics listed in appendix C. ALT+F4 is the shortcut key for the Close option in the menu.

Motif Only: If the Control menu includes shortcut keys for options other than Close, the shortcut keys used are ones listed in appendix C.

MS Windows Only: The Control menu does not include shortcut keys for options other than Close.

² MS Windows supports a pop-up menu for the window that provides access to window management functions and is comparable to the Window menu in Motif. The specifications presented here refer to this window decoration as a Control menu in order to minimize confusion with the Window menu that is included in the menu bar of an MDI application.

³ MS Windows supports this feature to maintain consistency with previous versions of Windows but recommends against using it as the primary method for closing a window.

ALT+SPACE displays the Control menu in the window with focus.

MS Windows Only: ALT+HYPHEN displays the Control menu in an MDI document window (see section 7.1.2.3).

The arrow keys navigate between options, and RETURN (and SPACE in Motif) activates an option and dismisses the menu. ESC dismisses the menu without activating an option.

4.1.3 Window Buttons

4.1.3.1 Maximize and Minimize Buttons (Motif Only)

Maximize and Minimize buttons are included in the title bar if these management functions are supported in the window. If the window contains a Maximize button, it is displayed at the right edge of the title bar; if a Minimize button is present, it is displayed to the left of the Maximize button.

Activating the Maximize option in the Control menu or clicking BLeft on the Maximize button expands a window to its maximum size. Activating the Restore option in the Control menu or clicking BLeft on the Maximize button a second time restores the window to its size and location before being maximized. Activating the Minimize option in the Control menu or clicking BLeft on the Minimize button minimizes the window.

4.1.3.2 Maximize, Minimize, Restore, What's This?, and Close Buttons (MS Windows Only)

Maximize, Minimize, What's This?, and Close buttons are included in the title bar if these management functions are supported in the window. The Close button is displayed at the right edge of the title bar. If the window has Minimize and Maximize buttons, they are placed to the left of the Close button. If the window has a What's This? button, it is placed to the left of the Close button.

Activating the Maximize option in the Control menu or clicking BLeft on the Maximize button expands a window to its maximum size and replaces the button with a Restore button. Activating the Restore option in the Control menu or clicking BLeft on the Restore button returns the window to its size and location before being maximized. Maximizing an MDI document window (see section 7.1.2.3) closes the window and displays its content in the parent window; the title of the parent window changes to include the document name, and a scroll bar is displayed in the window if its contents require scrolling.

Activating the Minimize option in the Control menu or clicking BLeft on the Minimize button minimizes the window. Clicking BLeft on the What's This? button activates context-sensitive help mode (see section 11.1). Activating the Close option in the Control menu or clicking BLeft on the Close button dismisses the window.

4.1.4 Window Border and Sizing Grip

The window border defines the boundary of a window. If the window can be resized, the window border includes sizing handles to support this function. Dragging the window border with BLeft moves an outline of the window as the pointer moves; the window is resized when BLeft is released. Activating the Size option in the Control menu and then dragging the window with the pointer also resizes the window.

MS Windows Only: A sizing grip is a special “handle” for sizing a window. If the window includes a sizing grip, it is located in the lower right corner of the window. Dragging the grip with BLeft moves an outline of the window as the pointer moves; the window is resized when BLeft is released.

4.2 Window Families

4.2.1 Primary and Secondary Windows

These specifications assume that an application uses one or more primary windows for performing the task(s) in the application (see section 7.1). The application displays secondary windows to present supplementary or supporting data or operations related to a primary window. These specifications define two types of secondary windows: dialog windows for short-term interactions related to subtask or function control, and message windows for presenting messages to users.

4.2.2 Parent-Child Relationships

A window family consists of a main or parent window and one or more subordinate or child windows.⁴ A primary window is the parent for all other windows in the family. A secondary window is the child of its parent primary window and may also be the parent of other secondary windows. These specifications assume that a dialog window can have children, but a message window cannot.

When a primary window is minimized, it and all of its child windows are minimized, and processing in the window continues. When the window is restored, it and all of its child windows that were open when the window was minimized are restored. Each primary window in the application is minimized separately.

When a primary window is raised or lowered, it and all of its child windows are raised or lowered with it. When a primary window is closed, it and all of its child windows are closed, and processing in the primary window stops. When the last primary window for the application is closed, processing by the application ends.

When a secondary window is opened, it is placed in front of its parent window, and the parent remains open. When a secondary window is closed, it and all of its child windows are closed but its parent window is not affected.

⁴ MS Windows uses the term “child window” to refer to a document window in an MDI application.

4.2.3 Window Mode

The mode assigned to a child window determines the extent to which users can interact with other windows while the window is open. If a window is modeless, users can interact with other windows. If a window is modal, users are restricted from interacting with other application and/or system windows. An application modal window does not allow interaction with any window created by the same application even if the application has multiple primary windows, and a system modal window does not allow interaction with any other open window. Figure 4-2 illustrates the interaction restrictions for a message window in Application A under each type of modality.

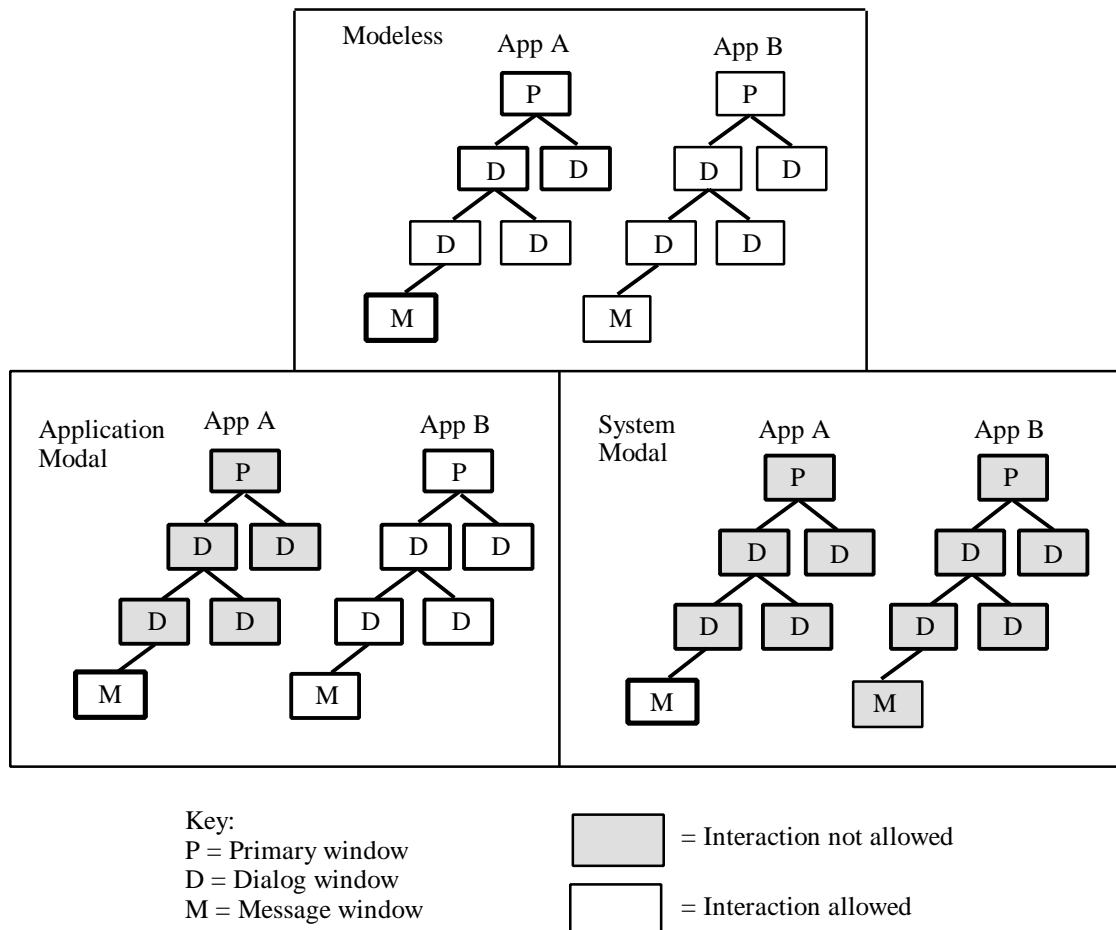


Figure 4-2. Interaction restrictions in modeless and modal windows.

A secondary window is modeless whenever possible. A secondary window is application modal only if the application requires user input in order to continue processing. A secondary window is system modal only when a critical error is detected or an unrecoverable condition exists.⁵

⁵ Previous versions of Motif required that certain types of secondary windows be modal.

4.3 Minimized Windows

4.3.1 Window Icons (Motif Only)

A window icon provides a visual representation of a minimized window. A window icon consists of a graphic image and a label, as shown in figure 4-3. The icon has the same image as that used for the application icon (see appendix E) and the same name as the corresponding window. When the icon does not have focus, its label is the same width as the icon image, truncating the label as necessary. When the icon has focus, the location cursor is displayed on the icon and the full icon label is displayed. The icon includes a Control menu with the same options as the Control menu of the corresponding window.

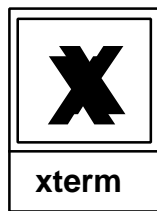


Figure 4-3. Example window icon in Motif.

Users can display a window icon either in an icon box or directly on the desktop. The appearance of the icon is the same in both cases. If an icon box is used, the icon is placed in the box whenever users open a primary window. The icon is dimmed (e.g., grayed out) when the window is active and returns to normal appearance when the window is minimized. The icon is dismissed from the icon box when the window is closed. If an icon box is not used, the icon is displayed on the desktop only when the corresponding window is minimized.

Clicking BLeft or BRight on a window icon displays its Control menu. Selecting Restore from the menu or double clicking BLeft on the window icon restores the window and its children to their previous size and location. If the window was maximized prior to being minimized, the window is displayed at its maximized size. Dragging the icon with BLeft moves the icon as the pointer moves.

4.3.2 Taskbar Buttons (MS Windows Only)

A taskbar button provides access to a minimized window in the taskbar. The button consists of a graphic image and a label, as shown in figure 4-4. The icon has the same image as that used for the application icon (see appendix E) and the same name as the corresponding window. The text in the button is truncated as necessary to fit within the button when its size is adjusted by the taskbar. If the text is truncated, it is followed by an ellipsis (e.g., “TestApp...” in figure 4-4); placing the pointer on the button displays a small pop-up window containing the full name of the window.

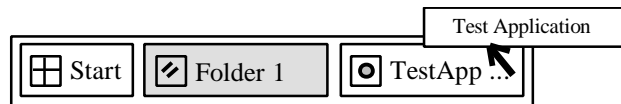


Figure 4-4. Example taskbar buttons in MS Windows.

A button is placed on the taskbar whenever users open a primary window. The button is highlighted (e.g., appears selected) when the window is active, and has its normal appearance (e.g., appears unselected) when the window is minimized. The button is removed from the taskbar when the window is closed. Clicking BLeft on a taskbar button restores the window and its children to their previous size and location.

Minimizing an MDI document window (see section 7.1.2.3) displays the taskbar button for the window at the bottom edge of the parent window. Minimizing the parent window closes all of the child document windows and displays the parent as a button in the taskbar.

4.4 Window Management Considerations

4.4.1 Window Size

The normal size of a window is large enough so that all of the window components are visible when it opens. The minimum size of a window is wide enough to read the window title, and tall enough to read the contents of the title bar and menu bar (if one is present).

Users can make a resizable window smaller than its normal size but can resize the window larger only if more information will be visible. When the window is resized, the size of objects in the window can change. For example, when a window containing a list is resized larger, the size of the list can increase so that more items are visible. When a window is resized, the contents of the window remain visible so that users can view the effect of the change in size on the amount of information that can be seen.

4.4.2 Window Location

The application defines a consistent location for windows when they are initially opened. For a dialog or message window, the default is to position the window in the center of the screen or in the center of the application window to which it relates. If an open dialog window is obscured by other windows, re-choosing the command that displayed the window raises it to the foreground without affecting its position on the workspace.